

**THE CLAIMS**

1. An expansion ring for expanding a perimeter of the end plate of a splice case, the ring designed to fit around the end plate perimeter and comprising two face plates and a rim connected to and separating the face plates, and having an aperture extending through the face plates, the aperture adapted to receive the end plate.
2. The expansion ring of claim 1 in which the ring is adapted to fit a cylindrical splice case housing.
3. The expansion ring of claim 2 in which the ring is annular.
4. The expansion ring of claim 1 in which the aperture is adapted to receive a circular end plate.
5. The expansion ring of claim 4 in which the aperture is a round hole.
6. The expansion ring of claim 1 in which the aperture is further adapted to receive the end plate in an environmentally sealing and air tight relationship.
7. An annular expansion ring for expanding a diameter of a circular end plate of a cylindrical splice case, the ring designed to circumferentially surround the end plate and comprising two circular face plates and a rim connected to and separating the face plates, and having a round hole extending through the face plates, the hole adapted to receive the circular end plate in an environmentally sealing relationship.
8. A method of expanding the perimeter of an end plate of a splice case comprising:

providing an expansion ring comprising two face plates and a rim connected to and separating the face plates, and having an aperture extending through the face plates, the aperture adapted to receive the end plate in an environmentally sealing relationship; and

positioning the ring around the perimeter of the end plate by locating the end plate in the aperture.

9. The method of claim 8 in which the ring is an annular ring and the face plates are circular face plates.
10. The method of claim 8 in which the aperture is a round hole.
11. The method of claim 8 in which the aperture is further adapted to receive the end plate in an environmentally sealing relationship.
12. A method of expanding a diameter of a circular end plate of a splice case comprising:
  - providing an annular expansion ring comprising two circular face plates and a rim connected to and separating the face plates, and having a round hole extending through the face plates, the hole adapted to receive the end plate in an environmentally sealing relationship; and
  - positioning the ring around the circumference of the end plate by locating the end plate in said hole.
13. A method of installing a larger splice case housing around an end plate sized to fit a smaller splice case housing, comprising the steps of:
  - expanding the perimeter of the end plate; and
  - installing the larger splice case housing around the expanded end plate in an environmentally sealing manner.
14. The method of claim 13 in which the expanding step comprises positioning an expansion ring around the perimeter of the end plate, the ring comprising two face plates and a rim connected to and separating the face plates, and having an aperture extending through the face plates, the aperture adapted to receive the end plate in an environmentally sealing relationship.
15. The method of claim 14 in which the ring is an annular ring and the face plates are circular face plates.
16. The method of claim 14 in which the aperture is a round hole.

17. The method of claim 14 in which the aperture is further adapted to receive the end plate in an airtight relationship.
18. The method of claim 13 in which the installing step further comprises installing the larger housing around the expanded end plate in an airtight manner.
19. A method of installing a cylindrical splice case housing around a circular end plate of smaller diameter, comprising:
  - expanding the diameter of the end plate by positioning an annular expansion ring around the circumference of the end plate, the ring comprising two circular face plates and a rim connected to and separating the face plates, and having a round hole extending through the face plates, the hole adapted to receive the circular end plate in an airtight, environmentally sealing relationship; and
  - installing the splice case housing around the expanded end plate in an airtight, environmentally sealing manner.
20. A splice case comprising:
  - two similarly dimensioned end plates, at least one end plate being an expanded end plate, the expanded end plate comprising an expansion ring and an end plate smaller in perimeter than the expanded end plate, the expansion ring comprising two face plates and a rim connected to and separating the face plates, and having an aperture extending through the face plates, the aperture adapted to receive the smaller perimeter end plate in an environmentally sealing relationship; and
  - a housing adapted to receive each of the two similarly dimensioned end plates in an environmentally sealing relationship such that an enclosed chamber forms therebetween.
21. The splice case of claim 20 in which the similarly dimensioned end plates are circular end plates of similar diameter.
22. The splice case of claim 20 in which the housing is a cylindrical housing.

23. The splice case of claim 20 in which the housing is further adapted to receive the similarly dimensioned end plates in an airtight relationship.

24. A cylindrical splice case comprising:

two circular end plates of similar diameter, at least one end plate being an expanded end plate, the expanded end plate comprising an annular expansion ring and a circular end plate of smaller diameter than the expanded end plate, the expansion ring comprising two circular face plates and a rim connected to and separating the face plates, and having a round hole extending through the face plates, the hole adapted to receive the smaller diameter end plate in an air tight, environmentally sealing relationship; and

a cylindrical housing adapted to receive each of the two circular end plates of similar diameter in an airtight, environmentally sealing relationship such that an enclosed chamber forms therebetween.

25. A method of repairing a damaged cable line in which damaged cable extends through a first end plate on one side of a first splice case to an undamaged cable extending through a second end plate on the opposite side of the splice case, in which a plurality of individual wires of the damaged cable are spliced to a plurality of individual wires of the undamaged cable in the splice case, comprising;

opening the first splice case to expose the spliced wires;

bringing the end of a replacement cable through a temporary, third end plate larger than said first end plate and which is formed with sufficient openings to separately encase the damaged cable, the undamaged cable, and a replacement cable;

placing an expansion ring on said second end plate, said expansion ring having a diameter substantially the same as the diameter of the third end plate and formed with an aperture therethrough adapted to receive the second end plate in an environmentally sealing and air tight relationship;

disconnecting some, but not all, of the spliced wires of the damaged cable;

placing the damaged cable, undamaged cable partially connected to the damaged cable, and replacement cable partially connected to the undamaged cable in a second splice case of a size larger than the first splice case to form with the third end plate and expansion ring, and environmentally sealing and air tight relationship;

thereafter, opening the second splice case, finishing splicing remaining wires to completely remove the damaged cable and completely connect the replacement cable to the undamaged cable, then replacing the third end plate with a same size substitute for the first end plate, removing the expansion ring, and placing the undamaged cable connected to the replacement in the first splice case, or in a substitute therefor, in an environmentally sealing and air tight relationship.